

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

Amendments to the Drawings:

The attached sheet of drawings includes changes to FIGS. 12A and 12B. FIG. 12B is deleted and FIG. 12A has been renumbered as FIG. 12. This sheet, which includes FIGS. 12, 13 and 14, replaces the original sheet including FIGS. 12A, 12B, 13 and 14.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

REMARKS

Applicant cancelled claim 255 and deleted FIG. 12B from the drawings without prejudice or disclaimer of their subject matter, and amended claims 131, 133, 219, 272, and 276 to further define Applicant's claimed invention. Support for the amendment to independent claim 131 can be found at least in FIGS. 12-14 of the application. Support for the amendment to independent claim 219 can be found at least in FIGS. 12 and 15 of the application. No new matter has been added.

1. Objections to the Specification

In the Office Action, the Examiner objected to the Amendment filed October 9, 2003 ("October 2003 Amendment") under 35 U.S.C. § 132, contending that the proposed drawings and associated descriptions introduce new matter into the disclosure. Applicant respectfully disagrees with the Examiner's assertion that FIGS. 1A, 1B, 1C, 12B, 14A, and 14B are new matter. These drawings were added in response to the Examiner's objections to the drawings in the Office Action dated April 23, 2003. As discussed in the paragraph bridging pages 21 and 22 of the October 2003 Amendment, FIG. 1A is supported at least by FIG. 15 of U.S. Patent No. 5,593,409, which is incorporated by reference in the specification on page 7, lines 1 and 2; FIG. 1B is supported at least by claim 25 as originally filed; FIG. 1C is supported at least by claim 43 as originally filed; FIG. 12B is supported at least by claim 131 as originally filed and FIG. 12A; and FIGS. 14A and 14B are supported at least by claim 18 as originally filed.

Applicant's specification states that "[w]hile the implant shown in FIGS. 1, 2, and 3 is an interbody spinal fusion implant, it is appreciated that the surface configuration of the present invention is applicable to any interbody spinal fusion implants, including but not limited to, an artificial disc or motion preserving device having opposed surfaces incorporating the present inventive teachings for engaging each of the adjacent vertebral bodies." (Specification, page 20, lines 17-21). Applicant's specification expressly incorporates the '409 patent by reference on page 7, lines 1-2. Applicant submits that FIG. 1A is a copy of FIG. 15 of the '409 patent, incorporated herein by reference, further incorporating the following express teachings in Applicant's

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

specification: (1) "the surface configuration of the present invention is applicable to any interbody spinal fusion implants (Specification, page 20, lines 17-19); and (2) some examples of interbody spinal implants that may benefit from the present teaching, include but are not limited to the following patents and applications by Michelson which are incorporated by reference herein . . . 5,593,409." (Specification, page 6, line 21 through page 7, line 2). FIG. 1B is a top elevational view of the implant of FIG. 1A. As originally filed in the parent application serial no. 09/457,228 ("parent application"), original claim 25 recited: "[t]he spinal implant of claim 24, wherein said leading end, trailing end, and sides form a circle." Accordingly, FIGS. 1A and 1B are fully supported by Applicant's specification as originally filed and are not new matter.

In response to the Examiner's new matter objection to FIG. 1C, Applicant respectfully submits that as originally filed in the parent application, original claim 43 recited: "[t]he spinal implant of claim 1, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent vertebral bodies." Applicant submits that FIG. 1C does not represent the motion preserving device to be a rectangle. FIG. 1C is a block diagram, graphically representing a motion preserving device, which is not specifically illustrated. As such, FIG. 1C neither represents nor limits the motion preserving device to be a rectangle.

Applicant respectfully disagrees with the Examiner's contention that FIG. 12B is new matter. Applicant submits that the orientation of the projections and of facet names are interchangeable and would be apparent to one of ordinary skill in the art in view of claim 131 as originally filed in the parent application. Nonetheless, Applicant deleted FIG. 12B to expedite the prosecution of this application.

Applicant respectfully disagrees with the Examiner's contention regarding FIGS. 14A and 14B that "it is mechanically impossible to have anything but a V-shape." (Office Action, page 4). As stated in the paragraph bridging pages 19 and 20 of Applicant's specification, "a plurality of surface projections 122 are spaced apart laterally (side to side) by longitudinal grooves 130 formed along the longitudinal axis L of implant 100. In one embodiment, longitudinal grooves 130 have a V-shaped horizontal cross-section. . . It is further appreciated that for all the various embodiments

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

of the surface configuration of the present invention, longitudinal grooves 130 can have horizontal cross-sections in a variety of configurations such as, without limitation, square-shaped or U-shaped configurations." Applicant's specification also states that "[t]he surface configuration of the present invention can be formed by casting, machining, or any other techniques known to one of ordinary skill in the art." (Specification, page 4, lines 19-20). Claim 18, as originally filed in the parent application, recited: "[t]he spinal implant of claim 13, wherein at least one of said grooves has a horizontal cross-sectional shape selected from one of a v-shape, u-shape, and a box-like shape." In addition, FIG. 14C, which has been approved by the Examiner, shows that the projections are spaced apart laterally by the grooves and that the grooves are not necessarily V-shaped in horizontal cross-section, unlike the grooves shown in FIGS. 6, 10, and 14. Applicant submits that because there is a longitudinally extending space between the side walls of the projections, the grooves could be square-shaped or U-shaped in cross-section, as shown in FIGS. 14A and 14B, respectively. Further, in response to the Examiner's inquiry, Applicant confirms that claim 18 is original to the parent application. Applicant submits that the new matter objections have been overcome.

2. Objections to the Drawings

The Examiner objected to the drawings under 37 C.F.R. § 1.83(a) as failing to show every feature of the invention specified in the claims. Applicant respectfully disagrees that the limitations of claims 21 and 228 are not shown in the drawings. The Examiner is directed to FIG. 1B showing a top elevational view of the implant of the claimed invention and illustrating that the upper and lower surfaces are arcuate since the implant is circular in shape. Applicant respectfully disagrees that the limitations of claims 22-24 and 229-232 are not shown in the drawings and directs the Examiner to FIG. 1A, showing a perspective view of an embodiment of the invention. FIG. 1A illustrates that at least one of the leading end, trailing end, and sides of the implant are curved. Moreover, Applicant respectfully disagrees with the Examiner that the "cap" claimed in claim 47 is not illustrated in the drawings and directs the Examiner to the paragraph bridging pages 19 and 20 of the specification, amended on page 4 of the

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

Amendment dated October 8, 2003 as follows: "[t]he implant can have an internal chamber and may also have an access opening for accessing the internal chamber, in which case the implant can further have a cover such as a cap 101' (shown in Fig. 1A) to close the access opening at least in part." (Emphasis in original). Applicant submits that Applicant's FIG. 1A adequately illustrates all elements of claim 47. Applicant submits that the objections to the drawings have been overcome.

3. Rejections under 35 U.S.C. § 112

The Examiner rejected claim 131 and its depending claims (at least claims 131, 133, 135, 137-145, 205, 206, 213-215, and 272-276) under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant amended independent claim 131 to replace the terms "right facet" and "left facet" with "first facet" and "second facet," respectively. Claim 131 recites a plurality of surface projections (322) having a plurality of facets (324, 326, 332, 334). (See FIG. 12). At least a first and a second of the surface projections (322) each have at least a first facet (324) and at least a second facet (326) opposite the first facet (324). (See FIGS. 12 and 13). The first and second facets each have a length and a slope, the length of the first facet (324) being longer than the length of the second facet (326), and the slope of the second facet (326) being steeper than the slope of the first facet (324). (See FIG. 13). Applicant submits that the rejection of claim 131 under 35 U.S.C. § 112, first paragraph, has been overcome.

The Examiner rejected claim 131 and its depending claims (at least claims 131, 133, 135, 137-145, 205, 206, 213-215, and 272-276) under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully disagrees with the Examiner's rejection because one of ordinary skill in the art would readily understand the meaning of the term "portion of the perimeter" as used by the Applicant. Nonetheless, to expedite the prosecution of this application, Applicant amended claim 131 to recite "said second facet having a perimeter, at least a first and a second portion of said perimeter being arranged to form an included angle greater than 90 degrees between said first and second portions of the perimeter." A perimeter is

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

"the boundary of a closed plane figure." (Merriam-Webster Online Dictionary, <http://m-w.com/dictionary/perimeter>). Thus, "at least a first and a second portion of said perimeter being arranged to form an included angle greater than 90 degrees between said first and second portions of the perimeter" would be interpreted by one of ordinary skill to mean that at least two sides of the second facet form therebetween an included angle that is greater than 90 degrees. Applicant submits that the rejection of claim 131 under 35 U.S.C. § 112 has been overcome.

4. Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 131 and 219 and their depending claims (at least 219, 228-255, 277-284 and (131, 133, 135, 137-145, 205, 206, 213-215, and 272-276 as far as the scope can be determined)) under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,482,233 to Aebi et al. ("Aebi"); rejected claims 131 and 219 and their depending claims (at least 219, 228-255, 277-284 and 131, 133, 135, 137-145, 205, 206, 213-215, and 272-276 as far as the scope can be determined) under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,258,125 to Paul et al. ("Paul") in view of U.S. Patent No. 6,432,106 to Fraser ("Fraser"); rejected claims 131 and 219 and their depending claims (at least 219, 228-255, 277-284 and (131, 133, 135, 137-145, 205, 206, 213-215, and 272-276 as far as the scope can be determined)) under 35 U.S.C. § 103(a) as being unpatentable over Paul in view of U.S. Patent No. 6,325,827 to Lin ("Lin").

Applicant amended independent claim 131 to recite "at least a first and a second of said surface projections each having at least a first facet and at least a second facet opposite said first facet, each of said first and second facets having a length and a slope, the length of said first facet being longer than the length of said second facet, the slope of said second facet being steeper than the slope of said first facet, said second facet having a perimeter, at least a first and a second portion of said perimeter being arranged to form an included angle greater than 90 degrees between said first and second portions of the perimeter." Neither Aebi, Paul, Fraser, nor Lin, taken alone or when properly combined, disclose or suggest such structure. In each of Aebi, Paul, Fraser, and Lin, none of the angles included between any two portions of the perimeter

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

of the second facet are greater than 90 degrees. (See Aebi, Fig. 2; Paul, Figs. 1 and 9; Fraser, Fig. 11; Lin, Fig. 7).

Applicant amended independent claim 219 to recite "said at least one forward facet and said at least one rearward facet converging at said peak, said rearward facet having a perimeter with a first included angle proximate said peak and said forward facet having a perimeter with a second included angle proximate said peak, said first included angle being greater than said second included angle." Neither Aebi, Paul, Fraser, nor Lin, taken alone or when properly combined, disclose or suggest such structure. In each of Aebi, Paul, and Lin, the included angle at the peak of the forward facet is identical to the included angle at the peak of rearward facet. (See Aebi, Figs. 1 and 3; Paul, Figs. 1, 4, and 6; and Lin, Figs. 7 and 12). Frasier discloses a triangular projection with a rearward facet 72 and two opposing side facets 76 and 78 converging at line 74. (See Fraser, col. 3, lines 54-56 and Fig. 11). Frasier does not disclose a forward facing facet as recited in independent claim 219. Even if side facets 76 and 78 were considered to be forward facing, Fig. 11 of Fraser shows that the included angle at the peak of the rearward facet 72 is smaller than the included angle at the peak of each of the opposing side facets 76 and 78. Applicant submits that the Examiner's rejections of independent claims 131 and 219 and claims dependent therefrom under 35 U.S.C. § 103(a) in view of Aebi, Paul, Fraser, and Lin have been overcome.

Applicant submits that independent claims 131 and 219 are patentable and that dependent claims 133, 135, 137-145, 213-215, 228-254, and 259-284 dependent from one of independent claims 131 and 219, or claims dependent therefrom, are patentable at least due to their dependency from an allowable independent claim.

In view of the foregoing remarks, Applicant submits that the claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this reply, such extension is hereby respectfully requested. If there are any

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007

fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-3726.

Respectfully submitted,

MARTIN & FERRARO, LLP

Dated: May 30, 2007

By: 

Amedeo F. Ferraro
Registration No. 37,129

1557 Lake O'Pines Street, NE
Hartville, Ohio 44632
Telephone: (330) 877-0700
Facsimile: (330) 877-2030

Application No. 09/921,844
Amendment dated May 30, 2007
Reply to Office Action of February 21, 2007
ANNOTATED SHEET SHOWING CHANGES

5/9

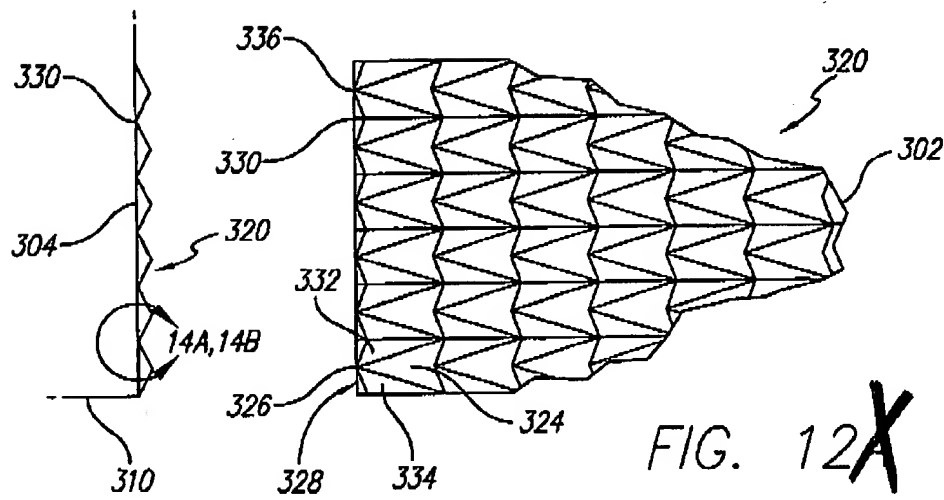


FIG. 14

